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EXAMINER

RILEY, SHAWN

ART UNIT PAPER NUMBER

2838

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/816,069

Applicant(s)

ODELL, ARTHUR B.

Examiner

Shawn Riley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on dec 04 request for rce.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date dec04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 U.S.C. § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 29-43 are rejected under 35 U.S.C. §102(b) as being fully anticipated by Takuya (JP Publication 10295081). Takuya shows,<sup>1</sup> (in, e.g., the(ir) figure(s) and corresponding disclosure)

As to claim 29;

A circuit (see published front figure), comprising: a first capacitor (2a) having first and second terminals; a second capacitor (2b) having first and second terminals, the first terminal of the second capacitor coupled to the second terminal of the first capacitor; a first transistor (4a) coupled across the first capacitor; and a second transistor (4b) coupled to the first transistor and across the second capacitor, wherein the first and second transistors are adapted to provide a bleed current to the first and second capacitors to balance a leakage current imbalance in the first and second capacitors (see, e.g., abstract,

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<sup>1</sup> Note claims will be addressed individually and the material in parentheses are the examiner's annotated comments. Further unless needed for clarity reasons, recited limitation(s), will be annotated only upon their first occurrence. Annotated claims begin with the phrase "As to claim". Claims that are not annotated are seen as having already had the invention(s) addressed previously in an annotated claim. Bolded words/phrases indicate rejected material based 112 paragraph rejections. Underlined words/phrases indicate objected to material

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first paragraph where the serial capacitors are voltage balanced, i.e., leakage current imbalance is bleed from out of balance capacitor(s) to balance the system of capacitors).

As to claim 30;

The circuit of claim 29 further comprising a resistor divider network (3g and 3h) coupled to respective control terminals of the first and second transistors to define an input reference for the circuit.

As to claim 31;

The circuit of claim 30 wherein the resistor divider network comprises at least two resistors (3g and 3h) coupled to the respective control terminals of the first and second transistors.

As to claim 32;

The circuit of claim 29 wherein the first and second transistors are coupled to the second terminal of the first capacitor (taken as node a) and the first terminal of the second capacitor (also taken as node a), the first and second transistors adapted to maintain a voltage at the second terminal of the first capacitor and the first terminal of the second capacitor within an input reference range (input reference range seen as value of voltage after 3e in cooperation with value of voltage seen at node b).

As to claim 33;

The circuit of claim 29 wherein the bleed current is substantially equal to the leakage current imbalance in the first and second capacitors (the bleed is substantially equal to the leakage current, the more current is charged via leakage, the more current is bled via the bleeding process).

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As to claim 34;

The circuit of claim 29 wherein the bleed current is substantially equal to zero when a voltage at the second terminal of the first capacitor and the first terminal of the second capacitor remains fixed at a voltage within an input reference range (when the two capacitances are substantially similar in voltage, the bleed current is substantially zero).

As to claim 35;

The circuit of claim 29 wherein the first and second transistors are coupled in a sink-source follower circuit configuration (4a and 4b are configured in a sink-source configuration).

As to claim 36;

The circuit of claim 35 wherein the sink-source follower circuit is coupled to receive an input reference (via 3e) that is a fraction (because the voltage travels through at least 3e, the value of the voltage is reduced, i.e. a fraction, something less than a whole) of a voltage (voltage seen at node between 2a and 3e) between the first terminal of the first capacitor and the second terminal of the second capacitor.

As to claim 37;

The circuit of claim 36 wherein the input reference is a range of voltages including upper and lower reference voltages (all inputs have a range with an upper and lower value no matter how limited/enormous that range may be), each of which is offset from the fraction of the voltage between the first terminal of the first capacitor and the second terminal of the second capacitor (offset occurs when 4a/4b functions).

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As to claim 38;

The circuit of claim 37 wherein the offset of the upper and lower reference voltages from the fraction of the voltage between the first terminal of the first capacitor and the second terminal of the second capacitor is zero (when the input voltage is zero).

As to claim 39;

The circuit of claim 35 wherein the first and second transistors comprise bipolar-junction transistors (4a/4b are bipolars).

As to claim 40;

The circuit of claim 39 wherein the first and second transistors comprise a PNP transistor and an NPN transistor (4a is a PNP and 4b is a NPN transistor).

As to claim 41;

The circuit of claim 40 further comprising an impedance (3e) coupled to a collector of the first transistor to limit the bleed current through the first transistor.

As to claim 42;

The circuit of claim 29 wherein the circuit is an active circuit included in a power supply circuit (figure 6 shows a power supply circuit).

As to claim 43;

The circuit of claim 41 wherein the impedance comprises a resistor (3e is represented as a resistance).

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***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takuya.

Takuya discloses the invention as described above however Takuya does not disclose the an impedance an impedance (3f) coupled to a collector of the second transistor. Instead Takuya shows the impedance coupled to the emitter of the second transistors. Therefore, because these two configurations were art recognized equivalents at the time the invention was made and further it would also have been an art recognized equivalent to switch the locations of 4a and 4b, one of ordinary skill in the are would have found it obvious to substitute the resistance on the collector side of 4b as a design choice since further, the outcome is equivalent and no new or unexpected result occurred because of the resistance's location.

As to claim 45;

The circuit of claim 44 wherein the impedance comprises a resistor (3f is represented as a resistance).

***Allowable Subject Matter***

3. No claims are allowable over the prior art of record.

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### *Conclusion*

Any inquiry from other than the applicant/attorney of record concerning this communication or earlier communications from the Examiner should be directed to the Patent Electronic Business Center (EBC) at 1.866.217.9197. Any inquiry from a member of the press concerning this communication or earlier communications from the Examiner or the application should be directed to the Office of Public Affairs at 703.305.8341. Any inquiry from the applicant or an attorney of record concerning this communication or earlier communications from the Examiner should be directed to Examiner Riley whose telephone number is 571.272.2083. The Examiner can normally be reached Monday through Thursday from 7:30-6:00 p.m. Eastern Standard Time. The Examiner's Supervisor is Mike Sherry who can be reached at 571.272.2084. Any inquiry about a case's location, retrieval of a case, or receipt of an amendment into a case or information regarding sent correspondence to a case **should be directed to 2800's Customer Service Center** at 571.272.2815. Any papers to be sent by fax MUST BE sent to fax number 703.872.9306. Any inquiry of a general nature of this application should be **directed to the Group receptionist** whose telephone number is 571.272.2800. Status information of cases may be found at <http://pair-direct.uspto.gov> wherein unpublished application information is found through private PAIR and published application information is found through public PAIR. Further help on using the PAIR system is available at 1.866.217.9197 (Electronic Business Center).

March 05



*Shawn Riley*  
*Primary Examiner*